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APPROVAL SHEET

The Non-Formal Education of Public Health Professionals:
A Review of GEMMA Supported Student Activities 2009-
2017

By

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B.A., Georgia State University, 2012

Thesis Committee Chair:

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The Non-Formal Education of Public Health Professionals: A Review of GEMMA Supported Student Activities 2009- 2017

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Global Elimination of Maternal Mortality from Abortion (GEMMA) is a mission, founded by Dr. Roger Rochat in 2003. (Goldman, 2007) The mission was created to educate and support students interested in the issue by offering: support in the form of a GEMMA seminar, a course created in response to growing demand from students, as well as the GEMMA fund, an endowment created to help fund student's endeavors. (Lathrop & Rochat, 2013)

To date, there has never been a systematic review of GEMMA supported student activities. This special study thesis has two objectives:

Objective 1: Collect and review student activities supported by GEMMA

Objective 2: Analyze activities categorized as non-formal education, to identify contributions to public health student's formal education and professional development

Data used was extracted from a thorough review of GEMMA documents and organized into activity types: Experiential Learning Opportunities (ELOs), thesis, and publications. After a code book was created, relevant data was analyzed using NVivo 12.

A qualitative analysis of GEMMA supported ELOs revealed that the 50 studied activities supplemented student's formal public health education, in 4 major ways: honing a specific skill set, working with unique populations, addressing domains of power impacting the issue or by working with collaborating organizations. Opportunities to participate in non-formal learning, are important to education, but not acknowledged or evaluated in the United States. (OECD; Werquin, Patrick, 2010) GEMMA provides students with a valuable opportunity to experience non-formal learning while supporting their formal education. Institutions in the United States that provide non-formal learning opportunities like GEMMA Mission or ERHA should collect information in order to conduct evaluations. Collecting consistent data and conducting routine evaluations of non-formal learning will help make a case for the inclusion and support of non-formal opportunities in higher education.

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BACKGROUND

History of Educating Healthcare Professions

The visibility and recognition of traditional health care professionals like doctors and nurses has created demand for institutions that educate and train burgeoning professionals to meet healthcare needs. Several medical schools, including Dartmouth, Harvard, and the University of Pennsylvania, founded medical schools as early as the 1760s. (Flexner, 1910) Over the 250 years that bio-medical healthcare professionals have been taught, the curriculum has undergone various evolutions to withstand changes in the field and meet demands. Time afforded biomedical educators the advantage of updating curriculums, teaching and accreditation styles. (Institute of Medicine (US) Division of Health Sciences Policy, 1983)

History of Educating Public Health Professionals (PHPs)

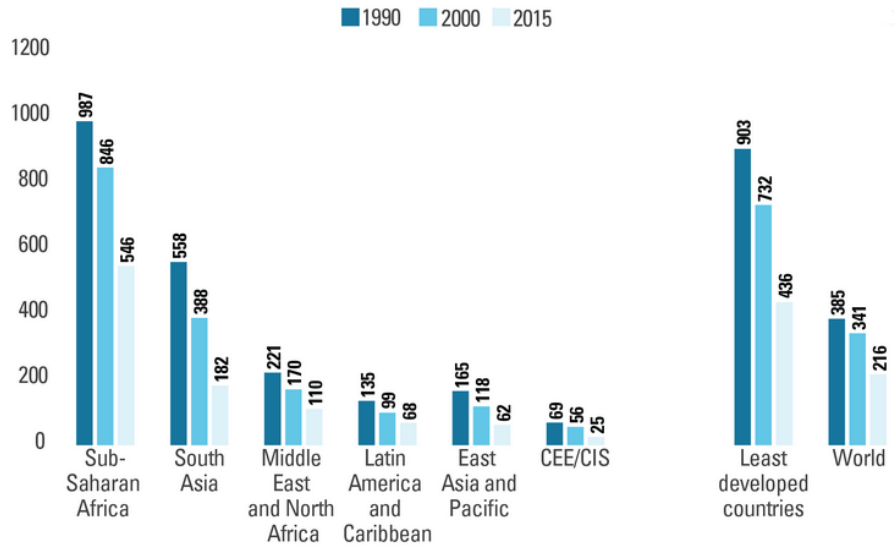
In comparison, formal education for public health professionals is a neoteric endeavor. The first institutions dedicated to educating public health professions were started between 1914 - 1920 and survived solely on the philanthropic contributions of private donors. These private individuals, such as Wickliffe Rose, thought it prudent to have specialized professionals who were able to address public health issues caused by an increasingly growing and dynamic population. It wasn't until the Social Security Act of 1935 that the U.S. government invested in public health professionals helping to distinguish the contributions of bio-medicine and public health as two different but equally important sectors. (Institute of Medicine, 2003)

The act not only created a high demand for public health professionals in the USA, but also for institutions to educate, train and provide credentials for these burgeoning specialists. From the 1930s to today, the field has flourished, and today there are over 200 CEPH accredited baccalaureate, post-baccalaureate programs dedicated to public health education. (Council on Education for Public Health, 2018) Over the years there have been several developments, that determine the curriculum and accreditation

requirements for schools. While we have come a long way, it is still important to note and evaluate the different ways that students learn and prepare for their career. Although many of the core requirements demanded by accreditation committees like the CEPH by courses and other graduation requirements, extracurricular activities play a large role in supplementing students' education. (CEPH, 2018)

INTRODUCTION

Table 1 Trends in MMR 1990, 2000, & 2015



*CEE/CIS: Central and Eastern Europe and the Commonwealth of Independent States

Source: World Health Organization, UNICEF, United Nations Population Fund and The World Bank, *Trends in Maternal Mortality: 1990 to 2015*, WHO, Geneva, 2015.

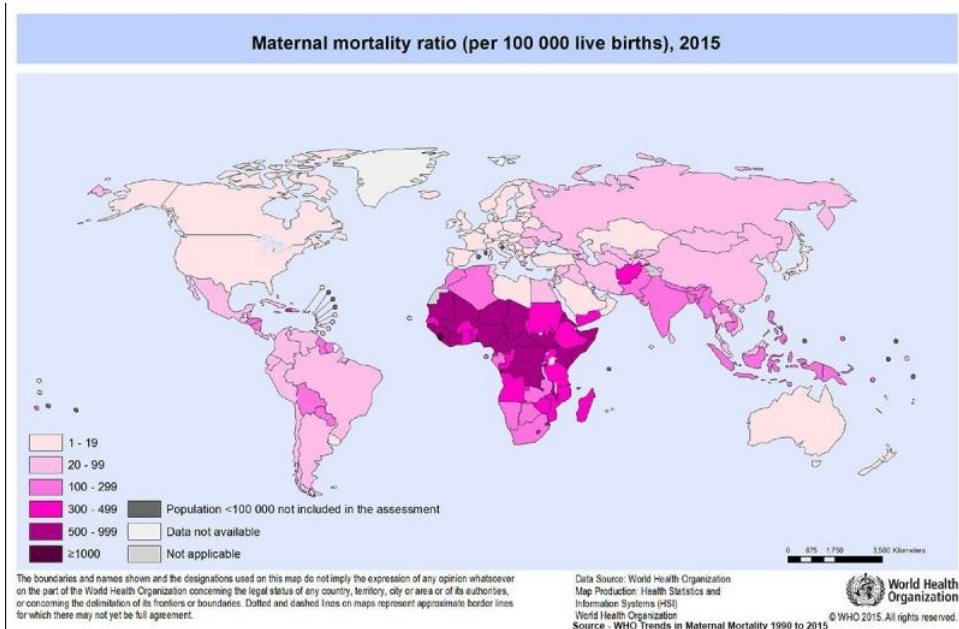


Figure 1 MAP of Global MMR 2015

Global Efforts to Reduce Maternal Mortality

The burden of maternal mortality is a global issue that has encouraged many to take action. Resolving issues related to the high maternal mortality rate has been a goal of leaders and organizations around the world. Reducing maternal deaths by 75% was a goal, of the Millennium Development Goals; but between 2009 and 2015, only nine of the 95 participating countries were able to reach that goal. (MDG Monitor, 2016) During that time, there was progress, a 44% reduction, but the issue was not resolved and therefore included in the Sustainable Development Goals. (United Nations, n.d.) Today, the World Health Organization estimates that nearly 830 women perish every day due to pregnancy or birth. (Alkema, et al., 2016) Maternal mortality disproportionately affects citizens in developing countries, women residing in rural areas, low income families, and adolescent girls 15 years old and younger. (World Health Organization, 2018) (Patton, et al., 2009). Intersecting issues listed below makes it difficult to eradicate, maternal mortality, but not impossible to eliminate: poverty, education, gender inequality, issues of autonomy, access to healthcare, mobility, and family size. (UNICEF, 2018) (Dowdle, 1999)

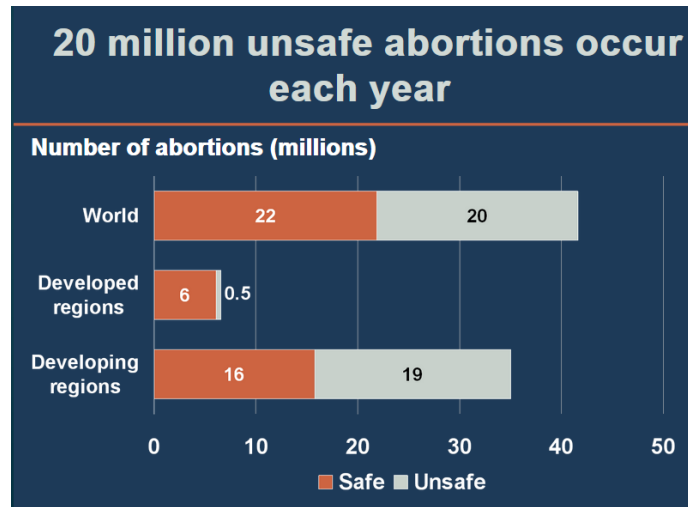
Many recognize pregnancy and birth related deaths are preventable with the proper resources and attention. Many women die because of complication during or after a pregnancy or delivery. There are five complications responsible for roughly 75% of all maternal deaths.

- 1) Hemorrhaging
- 2) Infection
- 3) High Blood Pressure
- 4) Delivery complications
- 5) **Unsafe abortions**

Every year roughly 4-13% of all maternal deaths are due to attempts at unsafe abortion. (Say, et al., 2014). More than 50 million abortions occur each year and 20 million are thought to happen using unsafe methods. Unsafe abortions can be addressed with various interventions and on multiple levels because it is a

matter of preventing unwanted or mistimed pregnancies. (Faundes, 2012) Addressing controversial issues like unsafe abortion is complicated due to restrictions and cultural, social, and legal implications. (Susheela Singh, 2018) Masters of Public Health (MPH) candidates face new challenges when they enter the field and attempt to assuage the burden of unsafe abortions and maternal mortality.

Table 2 Unsafe abortion



Source: Guttmacher Institute, 2009, Abortion worldwide Levels and Trends

History of RSPH

Rollins School of Public Health's (RSPH) was founded in 1990. The school's mission statement is to "impact health and well-being through excellence in teaching, research, and the application of knowledge in partnership with domestic and global communities." (Emory RSPH) According to the *U.S. News and World Reports, Best Graduate Schools*, Rollins School of Public Health placed 5th out of 177 accredited programs and institutes across the country, and has maintained a position in the top 10 for over 15 years. (U.S. News and World Report, n.d.) (Emory RSPH, 2018) RSPH recruit's educators who are experts in their fields. (Emory RSPH, n.d.). Rollins' students choose 1 of 6 departments offered: Behavioral Sciences and Health Education, Biostatistics and Bioinformatics, Environmental Health, Epidemiology, Health Policy and Management, and

the Hubert Department of Global Health. Rollins also offers MPH candidates the chance to earn one of 12 certificates: Humanitarian Emergencies; Genetic and Molecular Epidemiology; Maternal and Child Health; Human Rights; Mental Health; Socio-Contextual Determinants of Health; Water, Sanitation, and Hygiene; Injury & Violence Prevention; Religion and Health Certificates for Practicing Professionals: Public Health Informatics, Public Health Informatics for Leadership, Quantitative Methods in Public Health. A plethora of clubs, activities and events are offered for personal, academic and career development. Rollins provides students with various opportunities to participate in formal and non-formal education during their studies.

GEMMA

Global Elimination of Maternal Mortality from Abortion or GEMMA is a mission, founded by Dr. Roger Rochat in 2003. (Goldman, 2007) Dr. Rochat first noted the importance of population and population issues when while working in Bangladesh. (Rochat RW, 1981) During this time he noted that gaps in sexual and reproductive health lead to unsafe abortions and contributed to maternal mortality. Dr. Rochat once said, "I would like, in my life, to engage in important things that other people have difficulty dealing with.". Dr. Rochat has accomplished a "Legacy of Controversy" through his work with abortion. (Goldman, 2007) The GEMMA Mission was created to educate and support students interested in addressing the complexities of abortion incidences and maternal mortality. (RSPH, n.d.).

In 2009, the mission offered students support in the form of a GEMMA seminar, a course in response to growing demand from students, as well as the GEMMA fund, an endowment created to help fund student's endeavors. (Lathrop & Rochat, 2013) GEMMA's provides MPH candidates with formal and non-formal education opportunities. Opportunities to participate in non-formal learning, are important to education, but rare and are largely unacknowledged in the United States. (OECD; Werquin, Patrick,, 2010) GEMMA provides students with a valuable opportunity to experience non-formal learning while supporting their formal learning.

Significance

International public health needs, contexts, and issues vary greatly, and have increased over the years. (Institute of Medicine, 2003) Increasing demands for accredited public health professions (PHPs), paired with mercurial global health issues means that strategic approaches to educating PHPs are also important. It is important to document how we educate and train MPH candidates. Much like formal education undergoes evaluation by an accreditation board, (CEPH, 2018), a systematic review of non-formal education, like health-related extracurricular activities, should be conducted periodically. A review of GEMMA supported student activities: reveals how students supplement their education, encourages others to review contributions and benefits of non-formal education, classifies student's interest and skill sets, identifies best practices.

Problem Statement

To date, there has never been a systematic review of GEMMA supported student activities. GEMMA supports Emory's MPH candidates' formal and non-formal learning. Non-formal education opportunities are not evaluated or acknowledged in the states. Contributions of non-formal education, among higher education institutions, in the US is not well documented or understood. (OECD; Werquin, Patrick, 2010) Public health can benefit from understanding the contributions and significance of various education contexts.

Purpose

GEMMA engages students and allows them to play an active role in their education. The mission provides students with various forms of support which contributes greatly to the knowledge, experiences and skills students rely on when they graduate from Rollins. This special study thesis has two objectives:

OBJECTIVE 1: Collect and review student activities supported by GEMMA

OBJECTIVE 2: Analyze activities categorized as non-formal education, to identify contributions to public health student's formal education and professional development.

Formal, non-formal and informal education

When extracurricular activities like clubs, missions, programs, scholarships etc., are established with the support of a public health institute, they became a part of the tools that a student uses to enhance their education. (Astin, 1999) Extracurricular activities and clubs directly related to public health are often used by students to explore interests, practice skills emphasized in formal education and prepare for field realities they will eventually face in their careers. Rollins offers students a variety of clubs, certificates, programs, organizations etc. related to skills or experiences related to public health. (Emory RSPH) These extracurricular activities are types of non-formal education defined by the International Institute For Educational Planning when researching “The diversification of the educational field”.

Learning can occur in three contexts, formal, non-formal and informal. Formal learning is widely supported by institutions and larger infrastructure. It is a heavily reviewed and regulated and features the use of curriculums and accreditation boards. Non-formal learning is not always organized by an institution but is organized and focuses on learning through doing. Informal learning is not accompanied by a formal curriculum nor does it fulfill institution requirements for graduation. Lastly informal learning is never organized and is a result of lived experiences, life opportunities and interactions. (Ainsworth, Heather; Eaton, Sarah;, 2010) All three contexts are important to learning new skills and students’ academic success and professional development.

GEMMA provides students with the opportunity to experience learning in a formal context through the GEMMA Seminar, and through non-formal contexts by financially supporting GEMMA related student activities. (Lathrop & Rochat, 2013) Only GEMMA’s contributions to formal education is reviewed, evaluated and edited by an accreditation board and Rollins school of public health. GEMMA’s contributions to MPH candidate’s non-formal education is notable but has not been reviewed. Non-formal education falls into three main categories: (Carron & Carr-Hill, 1991)

Popular education, which refers to activities completed voluntarily and focus on collaboration instead of competition. This category of informal education is characterized by work with vulnerable and marginalized populations, features approaches centered on learning by experience, flexibility, adapts activities to the learning needs and styles of students. (Carron & Carr-Hill, 1991)

Personal development is distinguished by its focus on student autonomy and reexamining and redefining the relationship between the student as an actor and organizations or communities engaged. Personal development education helps students narrow their scope of work and focus on a skill set and specialty they are interested in. (Carron & Carr-Hill, 1991)

Lastly, professional education refers to any engagement or support provided by relevant outside organizations. This is important because it provides students with a realistic expectation of what is going to happen when they enter the field. Although core courses provide students with necessary skills, professional education provides students with experience. It helps students understand and apply those basic skills in professional settings post-graduation. (Montelongo, 2002)
(Carron & Carr-Hill, 1991)

Several countries in Europe have noticed and praised the benefits of non-formal education and deliberately integrated it into national education frameworks. (European Commission , 2015). However, in the US, not enough attention is devoted to non-formal education opportunities that Master of Public Health (MPH) candidates participate in. Research observing and acknowledging non-formal education in the USA is sparse and data about non-formal activities for MPH candidates is not routinely collected and evaluated.

GEMMA Documents

GEMMA mission documents provide detailed information about student activities, support received from the GEMMA mission, and general outcomes of all activities. GEMMA documents included, Annual reports, GEMMA Evening Presentations, and student reports, thesis, publications and manuscripts. Reviewing these documents provided valuable information about projects from previous years. My primary review of GEMMA documents revealed three GEMMA supported student activities of significance: Experiential Learning Opportunities or ELOs, thesis's and publications.

METHODS

The purpose of this project was to review the works of students who were supported by Emory RSPH's GEMMA mission. In addition to understanding and noting the ways that these students pursued their academic and professional interests in reducing abortion related maternal mortality death, reviewing their work allows for an understanding and documentation of how students supplement their core curriculum with extracurricular activities. These activities, which are designed and carried out by students allow them to practice a range of skills and techniques required for graduation and important to their careers as public health professionals.

Sample

The sample of student activities consist solely Rollins School of Public Health students and affiliates who received GEMMA support. GEMMA support is defined as either financial assistance from the GEMMA fund, guidance, mentorship, knowledge or connections from the GEMMA seminar. A majority of the student's activities reviewed attended Rollins, but other students within Emory university sought and benefitted from the GEMMA mission's support. In addition to MPH candidates at Rollins, students from the law school, nursing school and theology school also used the GEMMA mission as a resource to supplement

their educations. As the GEMMA network grew and expanded several alumni returned to assist and mentor current students looking to complete ELOs thesis, or publications.

Procedures

The review of GEMMA supported student activities began with 90+ collected GEMMA Mission documents that mentioned student activities in detail: GEMMA Annual reports, GEMMA program agendas, GEMMA presentations, GEMMA Manuscripts, Emory news, Roger Rochat's CV (mission founder)., etc. After reviewing the Mission's documents, three types of activities were identified: Experiential learning opportunities, thesis, and publications. Additional data was retrieved from Emory's Electronic Thesis Database and journals that featured GEMMA supported students. Once it was determined that there were enough activities and information for a review, the data was compiled in an excel document and categorized. IRB exemption application because of lack of human research subjects.

Then a literature review was conducted using Emory's database and google scholar. The following topics were researched: the history of educating public health professionals, higher education public health, public health school accreditations, MPH graduation requirements, MPH core curriculum, teaching theories and teaching techniques, best practice for educating and training public health professionals. Information from these searches were used to create an analysis framework highlighting important techniques, theories, and practices, non-formal education, formal education, informal education, autonomous student support, student autonomy, student ownership of education, benefits of being a mentor, mentoring impact on professors.

Transfer all data to NVIVO 12 12 and do a primary review of data noting variables of interest and abnormalities. Narrow review of experiential Learning Opportunities ELOs from 2009-2017 because literature revealed ELOs were the only non-formal component of GEMMA support and this was the timeline of available data. Create inclusion and exclusion criteria for ELO data. Remove inappropriate data points based on exclusion criteria. Enter data on publications and thesis.

Secondary review of data in NVIVO 12 12 to note important components that GEMMA's extracurricular activities provide students. Create a qualitative analysis framework based on Non-Formal education styles, GEMMA's signature education style, practices of supporting student autonomy and ownership of education. constructed a code book to analyze data using variables present in activities and clearly contribute to students.

Conduct a final review of GEMMA Supported student activities and an analysis. Provide quantitative description for data where possible and relevant.

Analysis Codebook

GEMMA Supported Student Activity Qualitative Analysis Codebook		
Code	Description	Example
Experiential Learning Opportunities (ELO)	Student activities supported by the GEMMA fund or a GEMMA mentor. ELOs are designed or initiated by the student, and provides an opportunity to practice skills emphasized by Rollins curriculums. Activities must fall under one of three non-formal education categories. (Carron & Carr-Hill, 1991)	A Drug Study For Pain Management During First Trimester Abortion Procedures
Thesis	A thesis that is recognized by the mission and the student as GEMMA inspired and supported. GEMMA supported thesis are published each year in the GEMMA annual report.	Jennifer Swanson, The Issue Of Contraception: A Study On The Perceptions Of Contraceptive Use And The Consequences Of Unplanned Pregnancy Among Women In The Democratic Republic Of The Congo
Publication	Publications submitted by student authors. Publications must be relevant to the topic matter and include and Emory employed, GEMMA affiliate or mentor. <small>* indicates student author</small>	Luffy, S. M.* , Evans, D. P., & RoCHAT, R. W. (2015). " Siempre me critican": barriers to reproductive health in Ocotal, Nicaragua. <i>Revista Panamericana de Salud Pública</i> , 37(4-5), 245-250.

GEMMA Supported ELO

Qualitative Analysis Codebook

Skill Set -	Definition	Example from Data
Categorization of the skills students practice during an ELO. Some projects designed an experience that integrated more than one skill category.	<u>Research, Qualitative Methods</u> ELOs that include the collection or analysis of qualitative data. Includes the design or use In depth interviews, focus group discussions or field notes. Invalid source specified.	Kristi Allen conducted: “ <u>in-depth interviews</u> with young people aged 16-20 about their perceptions of and experiences with contraceptive access and use. <u>Sixteen young people</u> , including males and females with and without children and in a relationship or single, were <u>interviewed</u> for the project. “
	<u>Research, Quantitative Methods</u> ELOs focusing on nude numeric data collection and analysis to compare the relationship between variables and explain it mathematically. Quantitative methods include using surveys or software such as SAS to complete statistical analysis. Invalid source specified.	Assessing Fitted Condoms As A Sexual Health Intervention In Cape Town, South Africa: “ <u>Surveyed 133</u> heterosexual men to explore experiences and attitudes regarding standard condoms & interest in non-standard sized condoms”
	<u>Research, Mixed Methods</u> ELOs that students described as Mixed methods, or that clearly incorporated both qualitative and quantitative methods Invalid source specified.	Assessing Organization Strengths And Weaknesses, And Evaluating The Barriers Limiting Women’s Access To The Clinic For SRH Needs: “ <u>Our mixed-methods study</u> had two components”
	<u>Assessment</u> A systematic way of gathering information about an organization, community or population. The data is often used to justify resource	Assessing Organization Strengths And Weaknesses, And Evaluating The Barriers Limiting Women’s Access To The Clinic For SRH Needs:

	<p>expenditure, determine competencies, engage and inform, stakeholders, needs, assets, strengths weakness etc.</p> <p>Invalid source specified.</p>	<p><u>“an assessment of ASSAFETO’s strengths and weaknesses</u> as a professional midwifery <u>organization</u></p>
	<p><u>Initiative Design and Implementation</u></p> <p>Activities involving the creation or implementation of GEMMA related initiatives, curriculums, or programs.</p>	<p>Campaign to improve the sexual and reproductive health and rights of women in Mexico:</p> <p>“design and pilot advocacy messages aimed at de-stigmatizing and religious contexts of Mexico City and Oaxaca de Juárez”</p>
	<p><u>Monitoring and Evaluation</u></p> <p>ELOs conducting surveillance measures, reporting findings, making suggestions and recommendations, or observing the efficiency or effectiveness of GEMMA related activities.</p>	<p>Ruvani Jayaweera participated in conducting:</p> <p>“a monitoring and evaluation plan for the Aunty Jane Hotline, a safe abortion hotline operated by Fortress of Hope Africa (FOHA), a community based organization in Nairobi, Kenya. “</p>

Spheres of Influence-	Definition	Example from Data
<p>reoccurring domains of power that impact GEMMA related issues.</p>	<p><u>Social Influence</u></p> <p>The ability of a person or group to change another’s behavior, attitude or thoughts.Invalid source specified.</p> <p>Activities that explore or addressing factors related to social norms, expectations, roles, or taboos, compliance, agreeing in public, despite private objections, internalization, acceptance publicly and privately, or identification, influence of notable persons, figure heads Invalid source specified.</p>	<p>Cultural Social, And Institutional Barriers Women Experience When Accessing Abortion Services a student designed ELO:</p> <p>“Characterized <u>personal, cultural and social barriers experienced by women accessing abortion services</u> “</p>
	<p><u>Biomedical Influences</u> – activities engaging with formal healthcare</p>	<p>Margaret Bertram:</p>

	<p>infrastructures, facilities, providers, or theories. clinical work that is rooted in evidence based approach was also included in this category Invalid source specified.</p>	<p>Developed tools and conducted structured observations, <u>assessing client-provider interactions</u></p>
	<p><u>Legal Influences</u> – activities that included advocacy, health policies, or managing laws and restrictions regarding GEMMA related issues. Invalid source specified.</p>	<p>“Daniel’s [Bergmann] project sought <u>to understand the difference between de jure abortion legality and de facto abortion accessibility in Lomé, Togo</u>”</p>
	<p><u>Religious/Spiritual influence</u> – Activities that included factors related to spiritual or religious authorities’ beliefs or rituals. Invalid source specified.</p>	<p>Bethany Kotlar: “conducted 11 in-depth interviews with gynecologists to explore the relationship between participants’ <u>religious, spiritual, and moral beliefs and attitudes towards abortion</u>”</p>
	<p><u>Economic Influence</u> - any activities that explore or address costs, economic empowerment, financial restrictions impact on GEMMA related issues. Invalid source specified.</p>	<p>Tim Nielsen’s study worked to: “understand the <u>financial</u> and social barriers and facilitators to starting a contraceptive method post abortion,”</p>
<p>Target Population</p>	<p>The target demographic ELO focuses on or engages with. Populations were reviewed to ensure that GEMMA supported ELO’s could be defined as Non-Formal, popular education.</p>	<p>Examples of populations that GEMMA supported ELOs engage include: <u>women’s association members, and religious leaders, key stakeholders in abortion accessibility, counselors, Colombian activists and advocates</u></p>
<p>Collaborating Organizations</p>	<p>Host partners, organizations and sites that support students ELOs.</p>	<p><u>Emory University RSPH, CARE International</u></p>

Inclusion/Exclusion Criteria

This study included GEMMA Supported activities, from 2009-2017, published in official GEMMA documents. Any documents, reports, or presentations students submitted to GEMMA were also reviewed. All data points were acknowledged by the mission and participating student as GEMMA supported.

GEMMA supported publications and thesis were listed in the annual report and the founder's resume. All data found on these two GEMMA supported student activities can be found in their respective journals or Emory's electronic thesis databases. Only thesis and publications that were officially recognized by GEMMA mission documents from 2009-2017 were included.

During the primary review of GEMMA documents 77 experiential learning opportunities were identified and 50 were reviewed and included in analysis. Some students worked with GEMMA alumni. In those scenarios, the alumnus was removed from the list of participating students, and the activity was included in the list of reviewed ELOs. Activities were excluded from review for the following reasons: lack of public information available on student projects and ensuring that all activities reviewed were completed by active students. Some activities supported by GEMMA did not collect or publicize enough information about student activities to include in the data set. If there was not enough information available about the activity, it was removed. The second exclusion criteria accounts for GEMMA alumni who return to collaborate with or mentor other students. Although they participated in educating other PHPs their activities during that time, GEMMA supported or not, their activities cannot be included in the data. The information provided helps use conceptualize and understand how MPH students supplement their education, excluding the activities of those who have already graduated.

Limitations

There were limitations to completing this review of GEMMA supported student activities. Student activities and the GEMMA's support varied widely. Baseline information was not collected for all activities, it was difficult to construct a codebook and framework for review.

FINDINGS

All student activities included in analysis and findings were supported by GEMMA and contributed greatly to student's academic, personal, and professional development. ELOs are the focus of analysis as they are the only student activity that falls under the purview of a non-formal education style. Thesis and Publications were analyzed but are not as significant to understanding best practices of extra-curricular activities. A student's thesis is a graduation requirement for all MPH candidates and is monitored by universities and accrediting institutions making it a component of the core curriculum. Publications are another important GEMMA supported student activity but is a part of a peer-reviewed and heavily monitored process. GEMMA's support of students interested in publishing is laudable and contributes to students' competencies and credentials after graduation. Thesis and publications that include GEMMA related issues and requested support from the mission is also an indicator of student's dedication to working on the issue.

Experiential Learning Opportunity (ELO)



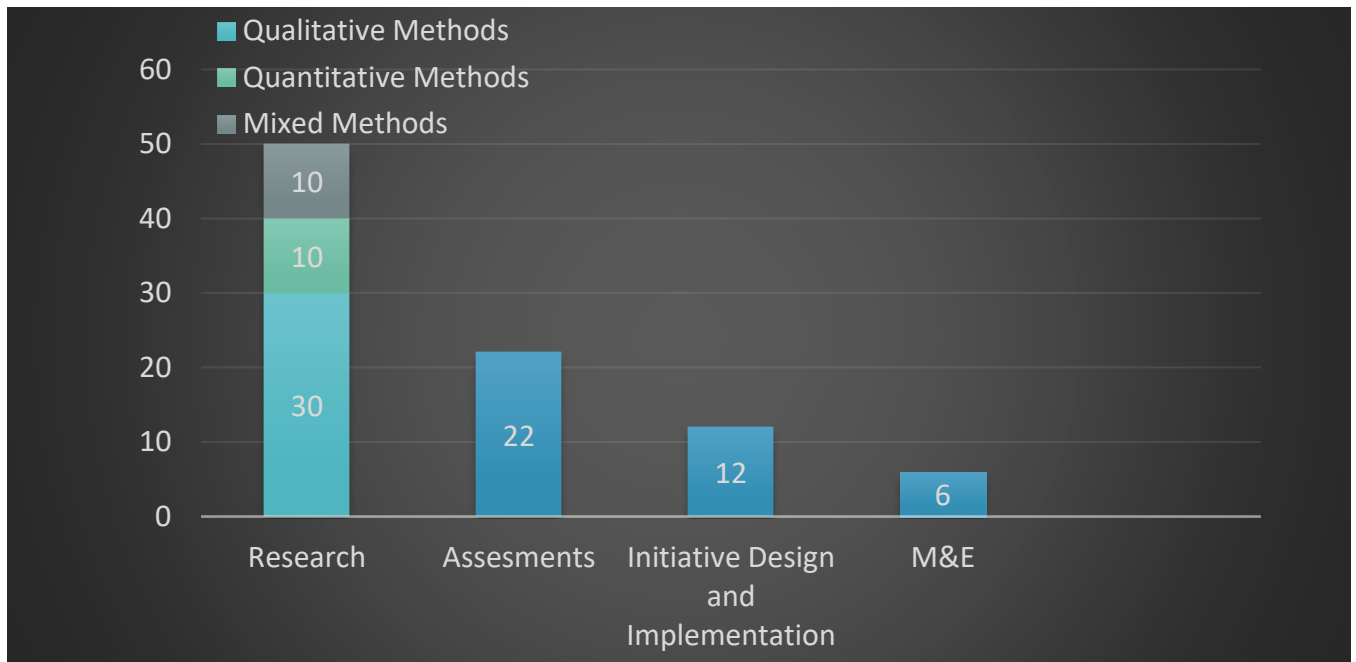
Figure 2 GEMMA Activity Locations

50 activities met the inclusion criteria and were reviewed and analyzed using the GEMMA Supported ELO Code Book. GEMMA supported ELOs offered students: internships, practicums, global field experiences, volunteer opportunities and inter-organizational collaborations. The GEMMA mission supported 80 students who were able to complete 50 experiential learning opportunities from 2009 -2017. During this time period

students collaborated with over 50 organizations, and worked in 19 countries, broadening GEMMA's network.

SKILLS PRACTICED IN GEMMA SUPPORTED ELOS

Table 3 Quantitative description of GEMMA supported ELOs



All 50 experiential learning opportunities allowed students to practice skills important to public health professionals. Most students were able to create projects that utilized several skills. Skills students employed are noted as essential by Rollins' curriculum. (Emory RSPH, n.d.) Students learned skills in classrooms were able to practice them in a safe and monitored environment. Consequentially, students who completed GEMMA supported ELOs receive documented experience in the skills of their choice while understanding the differences between theories taught in class and field realities. Students created activities that allowed them to hone skills deemed necessary and valuable for public health professionals. Skills students focused on were generalized into 4 major categories: Research projects, monitoring and evaluation, needs assessments or program design and implementation.

Research |

All 50 GEMMA supported ELOs included a research component.

60% of activities included qualitative components such as In-Depth Interviews (IDIs), Focus Group Discussions (FGD), or field notes and observations.

20% of all activities integrated quantitative research methods, such as surveys

20% of all activities were self-described as mixed-methods studies utilizing both qualitative and quantitative methods

Assessments |

44% included a community or organization assessments

Design and Implementation |

12% featured study, imitative, or program design or implementation

Monitoring & Evaluation |

4% ELOs included M&E components

SPHERES OF INFLUENCE

Students' ownership of their education extended from the skills practiced, to the spheres of influence addressed. Students participated in ELOs that allowed them to make specific contributions to addressing the maternal mortality caused by abortion in specific ways. A detailed review of data revealed that students were able to contribute to the global elimination of maternal mortality by working in the context of specific influencing factors. Much like the presence of multiple skills in an ELO student designed their scope of work to intersected with several spheres of influence. Students identified and worked within five influential spheres: social, clinical, political/legal, religious or spiritual and economic

Social |

52% of ELO's addressed GEMMA related issues stemming from social influences

Clinical |

36% Addressed biomedical influences

Legal |

24% of ELOs worked in a legal or political context

Religious/Spiritual |

8% included religious or spiritual influences

Economic |

4% included a focus on economic factors contributing to the global elimination of maternal mortality due to abortion.

POPULATIONS

ELOs students designed often targeted, hidden, vulnerable, and unique populations. Choosing a specific population to work with informs how various populations are impacted by an issue at various levels. Focusing on target demographics helps practitioners focus on how to effectively reduce fact

Examples of populations students worked with include: improvement teams, community-level health workers, pregnant women, religious leaders, key stakeholders in abortion accessibility, counselors, Colombian activists and advocates, public hospital workers, lawyers, legal advocates, social activists, pregnant women who had been tested with their partner for HIV, trained traditional birth attendants (TBAs), women who had to travel a great distance for abortion services, men, mothers attending infant immunization sessions, nurses, midwives, researchers, government employees, NGO staff, teens, Sex Workers, couples, Crisis Pregnancy Centers (CPCs), hotline operators, gynecologists,, Mexican Catholic men.

PARTNERING ORGANIZATIONS

Organization students worked with from 2009-2017 are listed below. Some students worked with more than one organization, and some organizations collaborate with GEMMA supported students repeatedly. Organizations students collaborated with include: International, local, governmental, NGOs, faith-based organizations, health care facilities, universities, and Crisis pregnancy centers. Collaborating organizations were defined as organizations that hosted students or directly supported activities in the field.

Collaborating Organizations

(57)

AgirPF (USAID/WA)	Care Kenya	Maharaj Nakorn Hospital in the Department of Obstetrics and Gynecology
Bixby Center For Global Reproductive Health At The University Of California, San Francisco,	Chiang Mai University School of Medicine	Marie Stopes South Africa
Católicas para el Derecho de Decidir (Catholics for Choice, CDD)	Chikankata Child Survival Project (CCSP)	Maternal And Newborn Health In Ethiopia Partnership (MANHEP),
Civil Registration And Vital Statistics (CRVS)	Clínica Leticia	Mexico National Pro-Choice Alliance
Fortress Of Hope Africa (FOHA)	Emory Family Planning	Mil Solidarios

Population Council	Emory University, Rollins School of Public Health	Mujer Y Salud,
Project San Francisco	Emory University's Nell Hodgson Woodruff School Of Nursing,	National Family Planning Fellowship
Theyfit Condoms	Emory's Rwanda Zambia HIV Research Group (RZHRG)	National Midwifery Association (ASSEFETO)
University of Alabama at Birmingham	EngenderHealth	Nepal's Ministry of Health and Population
Advancing New Standards In Reproductive Health (ANSIRH)	George, Western Cape Province Clinic	PAC Consortium Steering Committee
Emory University	Grupo de Información en Reproducción Elegida (Reproductive Choice Information Group, GIRE)	Paraguayan National Institute Of Health,
Project San Francisco (PSF)	Hospital Pereira Rossell	Power to Decide
Rwanda Zambia HIV Research Group	Human Research Sciences Council Of South Africa	Sex Workers Education and Advocacy Taskforce (SWEAT)
South Africa's National Health Insurance Program	IMA World Health in the Democratic Republic of the Congo (DRC)	Society For Education, Action And Research In Community Health (SEARCH)
American Public Health Association (APHA)	Iniciativas Sanitarias	The Council For Health Service Accreditation Of South Africa (COHSASA)
Cape Town City Centre Clinic	Ipas Nepal	The Ethiopian Federal Ministry Of Health

CARE	Jackson Women's Health Organization,	Two Alabama Abortion Clinics
CARE Ethiopia	Likhaan Center For Women's Health Inc.	Women's International Network for Guatemalan Solutions (WINGS)
Care International	Local Colombian Clinics	Zambia Emory HIV Research Project (ZEHRP)

Thesis

Every MPH candidate at Rollins must complete one of the following graduation requirement: thesis, special studies project or a capstone course. GEMMA supported students' thesis are ones that focused on maternal mortality and abortion related incidences. Students' thesis are not considered non-formal education and are not a requirement or expectation of students who receive support. GEMMA supports student's thesis by providing information, initiating and encouraging collaboration with current experts, offering guidance and mentorships and providing a safe judge free environment for students to learn in. All GEMMA supported Thesis were published in the annual GEMMA reports. GEMMA supported 29 student theses between 2009-2017. 22 out of 29 students who completed a GEMMA thesis, previously completed a GEMMA support ELOs.

Publications

GEMMA supported students submitted 47 manuscripts for publication between 2009-2017. Students submit their findings to a range of peer reviewed journals listed below:

African Journal of Reproductive Health	Field Methods	JAMA	Preventive Medicine
An International Journal for Research, Intervention and Care	Global Lancet	Journal of Biosocial Science	Rev Med Minas Gerais
BMC Women's Health	Health Care For Women International	Journal of Immigrant and Minority Health	Rev Panam Salud Publica
Chiang Mai Medical Journal	Indian Journal of Urology	Journal of the Association of Nurses in AIDS care, on line	Science and Practice Journal (GHSP Journal)

Child Abuse and Neglect	International Journal of Gynecology and Obstetrics	Maternal and Child Health Journal (6)	Scripto: A Publication Of The Science Writers Association Of Emory (SWAE).
Cochrane Database Of Systematic Reviews	International Journal of Medical Informatics	Medical Care	Society, Biology And Human Affairs (2)
Conflict and Health	International Perspectives on Sexual and Reproductive Health (3)	Obstetrics and Gynecology	The ANNALS of the American Academy of Political and Social Science (in press), Abortion Decision Making Access and Safety Workshop, Kenya, July 2014
Contraception	Journal of Community Health	Patient Preference and Adherence	Violence and Gender
Culture, Health & Sexuality (2)	Journal of Public Health Dentistry	PLOSONe	

Discussion

GEMMA supported activities provide students with three forms of non-formal education: popular education, personal development and professional education, and allowed students to assume ownership of their education. (Carron & Carr-Hill, 1991) Students who participated in GEMMA supported ELOs do so voluntarily and typically engage vulnerable or marginalized communities, distinguishing ELOs as form of non-formal education. Students are offered autonomous-support in choosing and creating activities to address: skills they would like to practice, influencing factors they would like to account for, and population in identifying issues they are interested in, finding experts and professionals currently working in that area. A qualitative analysis of GEMMA supported ELOs revealed that students supplemented their public health education, while participating in personal development and professional education, in 4 major ways: honing a specific skill, working with a unique population, addressing domains of power impacting the issue and or by the organizations engaged. Students were responsible for selecting key variables they deemed important to the professional education and personal development and create activities featuring them with the support of GEMMA faculty honing a specific s and organizations engaged. Students were responsible for selecting key variables they deemed important to the professional education and personal development and create activities featuring them with the support of GEMMA faculty

A review of GEMMA supported student activities is important because it can help us: identify best non-formal (ELO) teaching practices for PHPs, describe outcomes of non-formal education, supplementing students' formal education (thesis, publications), and understand non-formal contributions to student's education. Only GEMMA supported ELOs can be classified as a non-formal education style, but the other activities were significant because of the exemplary practice of providing autonomous support for student's formal learning. They are important in distinguishing GEMMA as an organization that supports learning on many levels. They are indicators of students' commitment to the topic and GEMMA's ability to successfully support students' academic, professional and personal development.

GEMMA supports non-formal learning in the form of ELOs. Students are provided with autonomous support because they design and implement activities they are interested in with the guidance of professors and field experts. Autonomous support is a best practice teach technique used by GEMMA. Autonomous support is essential to students owning their education, and creates an environment where students excel in academia and the field. (Stefanou, Perencevich, DiCintio, & Turner, 2004) Student autonomy and ownership of education is defined by students' ability to create and control the way they work in the field, the skills they chose to exercise, the locations, and other variables designed and chosen by the students. (Brown, 2008)

In addition to providing students with autonomous support GEMMA founder Dr. Rochat revealed that he maintained contact with many of his GEMMA alumni. He remained involved in their professional and personal lives and was delighted by their professional development and post-graduation work. Participating in non-formal education may be as important for professors and educators as it is for students. Much like the

benefits of mentoring for mentors, educators who participate in non-formal education may benefit from organizing and supporting non-formal education opportunities for students. The diversity and experiences educators are exposed to by supporting and participating in non-formal education may be relevant in molding their teaching styles and improving their abilities to empathize and relate with their students. For public health professors the exposure may also impact techniques and practices when in the field.

Conclusion

GEMMA's support of student's non-formal and formal education is a great example of how the two styles can be used to complement each other and improve the education, and capabilities of burgeoning health professionals' skills. The other countries have long accepted and integrated non-formal education into their education paradigm. More attention needs to be paid to extracurricular programs, clubs, and institutions in the us that use non-formal education to supplement PHP's higher education. We need more data and research about the contributions of non-formal education to MPH students and professors. Institutions should collect baseline information from endorsed extracurricular activities in order to evaluate their contributions to students' educations and post-graduation careers. USA based studies and evaluation of non-formal education will help create value and recognition of both formal and non-formal education.

Higher education for public health professionals is still in its formative stages when compared to other professions. The field is constantly evolving, and the way professionals are educated needs to keep up with the global issues. Public health educators and institutions should be strategic and flexible in when developing and implementing education strategies. In the future these evaluations of relevant extracurricular activities can serve as a model for other schools, organizations, professors or public health professionals who want to implement best practices to educate.

APPENDIX

Table 4 GEMMA Supported ELOS (50)

<p style="text-align: center;">2009-2017 GEMMA Supported Experiential Learning Opportunities Reviewed</p> <p style="text-align: center;">Region: USA (7)</p>					
Year	Original Title	Students	ELO Summation	Organization	Location
(2015-2016)	Evaluating The Feasibility And Acceptability Of Sending Pregnancy History Surveys Through	Chalker, Chad	Evaluating Feasibility Of SMS Surveys Assessing Pregnancy Outcomes And Abortions In Kenya.	Emory University	Atlanta, Georgia
(2015-2016)	Atlanta Women’s Center	Gelbard, Sarah Nakash Talya	A Drug Study For Pain Management During First Trimester Abortion Procedures	Emory Family Planning	Atlanta, Georgia
(2014-2015)	Facilitators And Barriers To Long Acting Reversible Contraceptive Uptake Post-Abortion In An Outpatient Clinic In Atlanta,	Michel, Kate Nielsen, Tim Woolford, Renita	Facilitators And Barriers to LARC Uptake Post-Abortion	Emory University: Lisa Haddad, Kristin Wall, Eva Lathrop, and Lauren Christensen-Lindquist	Atlanta, Georgia
(2013-2014)	Long Drives And Overburdened Clinics: The Problem Of Limiting Access To	DeMartelly, Victoria	Distance As A Barrier To Abortion Access	Two Alabama Abortion Clinics	Alabama

Abortion Services In Alabama					
(2010-2011)	Impacting Policy	Dawson, Ruth ^{MPH,JD} Hartman, Janelle Leidich, Aimee	Wrote and defended policy statements regarding: CPCs full disclosure, and adolescents, parental notification and abortion services	American Public Health Association (APHA)	Atlanta, Georgia
(2015-2016)	The Mississippi Improving Services And Policy Around Reproductive Care (iSPARC)	Scruggs, Kayley	Assessing birth control preferences and barriers for abortion clinic patients	Jackson Women's Health Organization, University of Alabama at Birmingham	Jackson, Mississippi
(2016-2017)	Teen And Unplanned Pregnancy In Dependency And Juvenile Delinquency Courts	Jolly, Sarah Ashley	Juvenile Delinquency Courts and unplanned pregnancy	Power to Decide	Washington D.C.
Region: Latin America (15)					
Year	Original Title	Students	ELO Summation	Organization	Location
(2013-2014)	An Analysis Of Barriers To Legal Abortion Access In Bogotá, Colombia	Brack, Chelsey Fink, Lauren Richardson, Kalie Stanhope, Kaitlyn	Barriers to safe, legal abortion after partial decriminalization	Emory University, Local Clinics	Bogotá, Colombia
(2009-2010)	A Qualitative Assessment Of Unwanted	Woodson, Ryan	Assessing Unwanted Pregnancies And	Emory University, Clínica Leticia	Leticia, Columbia

Induced Abortion In The Amazon					
(2009-2010)	The Politics Of Abortion-Associated Mortality: A Study Of Abortion Practices And Their Legal And Spiritual Influences And Ramifications In The Amazon Region Of Colombia	Rao, Shreya	Politics Of Abortion-Associated Mortality	Clínica Leticia	Leticia, Columbia
(2013-2014)	Client satisfaction with WINGS' services provided by community-based volunteer promoters in Alta Verapaz, Guatemala	Nystrom, Katherine	Assessing SRH Promoter-Client Relationships And Identifying Barriers To Contraception Education, Utilization, Satisfaction	Women's International Network for Guatemalan Solutions (WINGS)	Cobán, Guatemala
(2013-2014)	Assessment Of Illegal Abortion Practices In Urban Haiti	Berry-Bibee, Erin MPH, MD	An Assessment of Women's Illegal Abortion Experiences.	National Family Planning Fellowship	Cap Haitien, Haiti
(2011-2012)	A Survey Of Knowledge, Attitudes, And Practice About Family Planning In The Central Plateau Of Haiti	Nguyen, Antoinette MPH,MD Strunk, Sarah Rae Zaeh, Sandra	Knowledge, Attitudes, And Practice	Emory University: Dr. Eva Lathrop	Rural Haitian Central Plateau, Haiti
(2015-2016)	Unintended Pregnancy & Abortion In	Catalano, Andrea	Unintended Pregnancy & Abortion	Emory University	Comayagua, Honduras

Comayagua, Honduras					
(2011-2012)	Identify 3 Mexican Interventions That Seem To Be Effective And That Could Be Adapted For Implementation With Latino Adolescents In Georgia	Geller, Amanda	Evaluating Teen Pregnancy Interventions Through Interviews	Emory University	Cuernavaca, Mexico
(2009-2010)	Post-Abortion Care (PAC) Consortium Task Force On Broadening The Scope Of The Consortium	Abisamra, Roula Lozano, Briana	Evaluating PAC Consortium Expansion To Include Comprehensive Abortion Care In Activities	Mexico National Pro-Choice Alliance: The Task Force and the PAC Consortium Steering Committee	Mexico
(2009-2010)	GHI GEMMA Team	Abisamra, Roula Leidich, Aimee Dawson, Ruth ^{MPH, JD} Presley, Maria ^{Candler} School of Theology	Abortion Among National Pro-Choice Alliance Organizations	Mexico's National Pro-Choice Alliance - - Population Council, Grupo de Información en Reproducción Elegida (Reproductive Choice Information Group, GIRE), and Católicas para el Derecho de Decidir (Catholics for Choice, CDD)	Mexico

(2010-2011)	Promoting Sexual And Reproductive Health Through The Development Of A Strategic Campaign To Improve The Health And Fortify The Rights Of Women In Mexico	Karch, Lydia Stein, Sarah ^{MPH, JD} White, Darcy Claassen-Lüttner, Cayenne ^{Candler School of Theology}	Campaign to improve the sexual and reproductive health and rights of women in Mexico	Mexico's National Pro-Choice Alliance	Mexico City & Oaxaca de Juarez
(2013-2014)	Siempre Me Critica: Barriers To Reproductive Health In Ocotal, Nicaragua	Luffy, Samantha	Women's Experiences With Unintended Pregnancy	Emory University	Ocotal, Nicaragua
(2011-2012)	N/A	Keefe-Oates, Brianna	Parent-Child Communication And The SRH Needs Of Adolescents	Paraguayan National Institute Of Health, Mil Solidarios	Asuncion, Paraguay
(2011-2012)	Preliminary Investigation Of Current Abortion Issues In Paraguay	Dickerson, Anissa ^{MPH, MSN}	Abortion Issues In Restrictive Environments	Emory University	Paraguay
(2013-2014)	Abortion in Montevideo, Uruguay 18 Months After Decriminalization: Evaluating Access, Acceptability and Implementation	Kotlar, Bethany Et-Shalom, Yonah ^{MPH, MSN} Schroffel, Heidi	Abortion After Decriminalization: Surveying Client Experiences With Abortion Services	Iniciativas Sanitarias, Hospital Pereira Rossell, Mujer Y Salud,	Montevideo, Uruguay

Region: Africa (21)

Year	Original Title	Students	ELO Summation	Partnering Organizations	Location
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(2016-2017)	Integrated Family Planning And Infant Immunization Services In	Erhardt-Ohren, Blake	Integrating Sexual and Reproductive Health Goals Into Infant Immunization Services	CARE	Benin
(2014-2015)	The Perceptions Of Contraceptive Use And Abortion Practices Among Women In The Democratic Republic Of The Congo	Swanson, Jennifer	Barriers to contraceptive use and the consequences of unplanned pregnancies	IMA World Health in the Democratic Republic of the Congo (DRC)	Democratic Republic Of Congo
(2010-2011)	Assessed Cultural Appropriateness Of Sexual Relationship Power Scale (SRPS) And Gender Equitable Men (GEM) Scale To Collect Data As Part Of The Results Initiative Baseline Data (RIBD)	Getachew, Beth	Social Factors Influence On Family Planning Services, Education, Preference And Uptake	Emory University, Care International/ Care Ethiopia	Hararghe, Ethiopia
(2010-2011)	Documenting Social Change And Family Planning Use Among Widowed And Divorced Women In Hararghe, Ethiopia	Newton-Levinson, Anna	Consequences Of Unintended Or Undesired Pregnancy For Widowed Or Divorce Women And Access To SRH And Abortion Services	CARE Ethiopia	Hararghe, Ethiopia

(2010-2011)	N/A	Barry, Danika	Understanding Strategies Pregnancy Disclosure, Care Seeking, And The Provision Of Timely, Quality Care	Maternal And Newborn Health In Ethiopia Partnership (MANHEP), Emory University's Nell Hodgson Woodruff School Of Nursing, The Ethiopian Federal Ministry Of Health	Ethiopia
(2014-2015)	Developing A Monitoring And Evaluation Framework For A Safe Abortion Hotline In Nairobi, Kenya	Jayaweera, Ruvani	Monitoring And Evaluating The Knowledge And Practices Of Safe And Unsafe Abortions	Advancing New Standards In Reproductive Health (ANSIRH), Bixby Center For Global Reproductive Health At The University Of California, San Francisco, Fortress Of Hope Africa (FOHA)	Nairobi, Kenya
(2009-2010)	Examining Women And Men's Interpretations Of Gender Equity And Power Questions From Commonly Used Scales In Siaya, Kenya	Smith, Danielle	Perceived Gender And Power Norms On Family Planning Decision-Making	CARE Kenya	Siaya, Kenya
(2014-2015)	Maternal Morbidity And Mortality In Mulanje District, Southern Malawi	Charania, Sana Choice, Cheryl Nepiyala, John	Cultural Practices and healthcare workers attitudes impact on women's	Emory University	Malawi

	Street, Angel S. Zolowere, Davie		experiences with unsafe abortion		
(2014-2015)	Effectiveness Of Couples' Family Planning Counseling (CFPC) On The Uptake Of Long-Acting Reversible Contraception (LARC) Methods As Administered By Animateur De Sante (ADS) In Kigali, Rwanda.	Countryman, Kristina	Effectiveness Of Couples' Family Planning Counseling (CFPC) On The Uptake Of Long- Acting Reversible Contraception (LARC) Methods	Project San Francisco (PSF), Emory's Rwanda Zambia HIV Research Group (RZHRG)	Kigali, Rwanda
(2014-2015)	LARC In Rwanda: An Exploration Of LARC Uptake After Couple's Family Planning Counseling	Hughes, Gelsey	Reasons Why Couples Decline LARC Methods When Attempting To Delay Pregnancy	Rwanda Zambia HIV Research Group, Project San Francisco	Kigali, Rwanda
(2016-2017)	Assessing Fitted Condoms As A Sexual Health Intervention In Cape Town, South Africa	Guillen, Jose Miranda, Danielle Sigel, Cody	Assessing Fitted Condoms As A Sexual Health Intervention	HSRC, Emory University, Theyfit Condoms	Cape Town, South Africa
(2013-2014)	Developing And Assessing A Condom Sizing System In	Shrader, Cho Hee Peters, Kenisha	Developing And Assessing A Condom Sizing System	Human Research Sciences Council Of South Africa,	Cape Town, South Africa

(2014-2015)	Sex Work And Stigmatization: A Place-Based Analysis Of The Public Health Impact Of Stigma On Sex Worker Populations In South	Holl, Jennifer	Understanding Sex Workers Experience With Stigma And Discrimination When Accessing SRH Services	Sex Worker Education And Advocacy (SWEAT)	Cape Town, South Africa
(2011-2012)	N/A	Freeman, Jeff	Addressing Infant And Maternal Morbidity And Mortality	South Africa's National Health Insurance Program, Human Sciences Research Council (HSRC), Civil Registration And Vital Statistics (CRVS), The Council For Health Service Accreditation Of South Africa (COHSASA), Marie Stopes South Africa	Cape Town, South Africa
(2013-2014)	Moving Towards Legitimacy: Sex Worker Advocacy In Cape Town South Africa	Nelson, Kate	Sex Work, Motherhood, And Sexual And Reproductive Health	Sex Workers Education and Advocacy Taskforce (SWEAT)	South Africa
(2014-2015)	Exploring and Identifying Barriers Experienced By Women Accessing Abortion Services At Two Clinics In The Western Cape, South Africa	Anderson, Jaynia	Cultural Social, And Institutional Barriers Women Experience When Accessing Abortion Services	Cape Town City Centre Clinic, George, Western Cape Province Clinic	Western Cape, South Africa

(2016-2017)	Law And Abortion In Togo	Bergmann, Daniel	De Jure Abortion Legality Versus De Facto Abortion Accessibility	Emory University	Lomé Togo
(2016-2017)	The Burden Unsafe Abortion In Lomé,	Anderson, Katherine Adams, Emily McLeod, Haley	The Burden Of Unsafe Abortion In Togo	Emory University	Lomé, Togo
(2015-2016)	A Case Study Of The National Midwifery Association Of Togo (ASSAFETO)	Shapiro, Rachel Poovey, Brianna Baker, Helen	Assessing Organization Strengths And Weaknesses, And Evaluating The Barriers Limiting Women's Access To The Clinic For SRH Needs	EngenderHealth, AgirPF, National Midwifery Association (ASSEFETO)	Lomé, Togo.
(2009-2010)	A Needs Assessment Of Post-Partum Contraception For Pregnant Women Tested For HIV In Lusaka	Corcoran, Kellie	Fertility Control Needs Assessment And Abortion Perceptions Among Pregnant Couples Who Participate In HIV Testing	Zambia Emory HIV Research Project (ZEHRP)	Lusaka, Zambia
(2009-2010)	Utilizing Trained Traditional Birth Attendants To Improve Women's Health In Villages	Corey, Elizabeth	Traditional Birth Attendants And Family Planning Availability And Attitudes For Post Abortion Care	Chikankata Child Survival Project (CCSP)	Zambia
Region: Asia (7)					
Year	Original Title	Students	ELO Summation	Organization	Location
(2010-2011)	Distribution Of Direct And Indirect Maternal Deaths,	Fisher, Sarah	Distribution Of Direct And Indirect Maternal Deaths	Society For Education, Action And Research In	Gadchiroli, Maharashtra, India

	Suicide, Accidental Deaths			Community Health (SEARCH)	
(2009-2010)	Developing A Reproductive Health Education Intervention In Gadchiroli, India	Rabel, Brenna	Scientific Developments, Medical Terminations And Antiquated Regulations/Policies	Society For Education, Action And Research In Community Health (SEARCH)	Gadchiroli, India
(2009-2010)	Women's Perspectives On Male And Female Sterilization In Rural Maharashtra	Winter, Amy	Rural Women's Perspectives On Male And Female Sterilization	Society For Education, Action, Research, And Community Health (SEARCH)	Maharashtra, India
(2011-2012)	Pharmacist's Knowledge And Practices As It Relates To Adolescent Sexual And Reproductive Health	Balakumar, Kavitha	Assessing Pharmacist's Knowledge And Practices As It Relates To Post-Abortion Complications Among Adolescents	Ipas Nepal,	Kathmandu, Nepal
(2011-2012)	To Assess The Quality Of Care (Qoc) Of The Post-Abortion Family Planning Counseling That Clients Were Receiving In The Comprehensive Abortion Care (CAC) Unit Of The Kathmandu Maternity Hospital	Bertram, Margaret	Quality Of Care Assessment Of Family Planning Counseling	Ipas Nepal, Nepal's Ministry of Health and Population	Kathmandu, Nepal
(2013-2014)	Barriers and Facilitators of Contraceptive Use Among Young	Allen, Kristi	Youth's Perceptions and Experiences with Fertility	Likhaan Center For Women's Health Inc.	Manila, Philippines

People in Manila, Philippines		Control Access and Application		
(2014-2015)	The Characterization Of The Correlation Between Teenage Pregnancy And School Dropout Rates Among Teenage Women In Chiang Mai, Thailand	Dantzler, Alexa	Teenage Pregnancy And School Dropout Rates	Maharaj Nakorn Hospital in the Department of Obstetrics and Gynecology, Chiang Mai University School of Medicine Chiang Mai, Thailand

Table 5 GEMMA Supported Publications (44)

GEMMA Supported Publications (44)			
<i>*indicates students author</i>			
Title	Author	Journal	Status
Trends Of Induced Abortions In The State Of Georgia – A Comparison Of Four Race/Ethnic Groups: White, Black, Asian & Hispanic, 1994-2007	Bergander, Linn*	Contraception	1. Submitted
Interview Interruption And Questions About Domestic Violence In India Which Is	Rabel, Brenna *	The Journal Violence Against Women	2. Submitted
Determinants Of Sexual And Reproductive Rights Language: Catholic Men’s Opinions	Leidich, Aimee*	Culture, Health & Sexuality	3. Submitted

About Fertility Control In Mexico			
Using Community Mapping To Understand Family Planning Behavior. Forthcoming, Field Methods	White D* And Stephenson R.	Field Methods	4. Published
Traditional Birth Attendant Training For Improving Health Behaviors And Pregnancy Outcomes	Sibley, Lynn Sipe, Theresa Barry, Danika*	Cochrane Database Of Systematic Reviews	5. Published
People Insult Her As Sexy Woman: Sexuality, Stigma And Reproductive Health Among Widowed And Divorced Women-- Documenting Social Change In Oromiya, Ethiopia	Newton-Levinson A,* Winskell K, Abdela B, Rubardt M, Stephenson R.	Culture, Health & Sexuality An International Journal for Research, Intervention and Care	6. Published
The Abortion Debate In Mexico: Newspaper Coverage And Discourse 2001-2003.	Vala-Haynes E*, Stephenson R, Rochat RW, Yam EA, Rosas LG And Garcia SG	Society, Biology And Human Affairs	7. Published
Evaluating completeness of maternal mortality reporting in a rural health and social affairs unit in Vellore, India	Kim S*, Rochat R, Rajaratnam A, DiGirolamo A,	Journal of Biosocial Science	8. Published

Perinatal Regionalization for Very Low-Birth-Weight and Very Preterm Infants: A Meta-analysis	S. M. Lasswell*, W. D. Barfield, R. W. Rochat, and L. Blackmon	JAMA	9. Published
Chlamydia screening of adolescent females: a survey of providers in Hawaii	McGrath, Chika Muto*; Katz, Alan R; Lee, Maria Veneranda C.; Rochat, Roger W	J Community Health	10. Published
Abortion: Yesterday And Today, An Article Which Overviews The History Of Abortion Methods, Spanning As Far Back As 3000 BC	Abisamra, Roula* Leidich, Aimee*	Scripto: A Publication Of The Science Writers Association Of Emory (SWAE).	11. Published
Barriers to cervical cancer screening in Mulanje, Malawi: a qualitative study	Fort Victoria K*, Makin Mary Sue, Siegler Aaron J, Ault Kevin, Rochat Roger	Patient Preference and Adherence	12. Published
Contraceptive Use Among Clients of the Atlanta Feminist Women's Health Center at Three to Five Weeks Post-Abortion	Moslin TA*, Rochat RW	Maternal Child Health	13. Published
The abortion debate in Mexico: Newspaper coverage and discourse 2001-2003.	Vala-Haynes E*, Stephenson R, Rochat R, Yam EA, Rosas LG and Garcia SG	Society, Biology and Human Affairs	14. Published

Women's experiences of and perspectives on abortion at public facilities in Mexico City three years following decriminalization,	Claudia Diaz Olavarrieta, Sandra G. Garcia, Angelica Arangure, Vanessa Cravioto, Aremis Villalobos, Roula AbiSamra*, Roger Rochat, Davida Becker	International Journal of Gynecology and Obstetrics	15. Published
Patients' experiences of first-trimester abortion in public facilities in Mexico City: a mixed-methods study 3 years after decriminalization.	AbiSamra R. *, R Rochat, C Diaz, V. Cravioto, O. Gomez, S. Garcia, P.Sanhueza	Contraception	16. Published
Is Obesity Still Increasing among Pregnant Women? Pre-pregnancy Obesity Trends in 20 States, 2003-2009	S. C. Fisher*; S. Y. Kim; Andrea J Sharma; R. Rochat; B. Morrow	Preventive Medicine	17. Published
At the end of the day it was my decision": Abortion Decision-Making Among Women in the Western Cape, South Africa	Anderson, Jaynia* A.; Pamela Naidoo;; Monique Hennink; Roger Rochat	The ANNALS of the American Academy of Political and Social Science (in press), Abortion Decision Making Access and Safety Workshop, Kenya, July 2014	18. Published
The Hidden Problem of Illegal Abortions in Thailand	Chinthakanan Orawee*, Rochat Roger	Chiang Mai Medical Journal	19. Published

	W, Morakote Nuntana, Chaovitsere Somsak		
Decision-making about method of delivery on the U.S.-Mexico border	DeSisto, Carla L*, Jill McDonald, Roger Rochat, Beatriz A. Diaz-Apodaca, Eugene DeClercq,	Health Care For Women International	20. Published
Malnourished Children in Refugee Camps and Lack of Connection with Services after US Resettlement	Lutfy, Caitlyn*, Susan Cookson, Roger Rochat	Journal of Immigrant and Minority Health	21. Published
Concordancia entre informacoes do SISPRENATAL e o recordatorio materno em relacao a idade gestacional no momento do inicio do cuidado pre-natal Agreement between SISPRENATAL and mother's recall for gestational age at prenatal care initiation	Lucio Rodrigues Verani*, José A. Ferreira, Roger William Rochat, Michelle Oliveira, Teodoro Amorim, Amanda Jiran, Juan Shedan Leon	Rev Med Minas Gerais	22. Published
Factors associated with receiving treatment for dental decay among Medicaid-enrolled children younger	Zilversmit L*, Kane D, Rochat R, Rodgers T, Russell B	J Public Health Dent	23. Published

than 12 years of age in Iowa, 2010.			
First Trimester Initiation of Prenatal Care in the US-Mexico Border Region	Jill A. McDonald, Brittany Argotsinger*, Octavio Mojarro, Roger Rochat, Anup Amatya	Medical Care	24. Published
“Siempre me critican” Barriers to reproductive health in Ocotal, Nicaragua.	Luffy SM*, Evans DP, Rochat RW	Rev Panam Salud Publica	25. Published
It is better if I kill her”: Perceptions and opinions of violence against women and femicide in Ocotal, Nicaragua after Law 779	Luffy SM*, Evans DP, Rochat RW.	Violence and Gender	26. Published
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